

Explain how the energy of the Sun can be transferred to a secondary consumer.

Plant cells contain _____, the site of photosynthesis. Plants and many microorganisms use _____ energy to combine the inorganic molecules _____ and _____ into energy-rich organic compounds (ex _____) and release oxygen to the environment.

_____ -- the site of photosynthesis in plants

State the overall net equation for photosynthesis

What is the chief purpose of photosynthesis for a plant? _____

What type of chemical reaction is needed to convert the simple organic compound glucose to more complex ones like proteins, DNA, starches, and fats? _____

_____ bonds releases chemical energy

ATP → ATPase → _____ + P + _____

The phosphate bonds of the ATP molecule are _____ in energy.

The energy from ATP can be used to perform an organism's _____ processes.

Enzymes are _____ catalysts made mostly of _____.

A(n) _____ speeds up a chemical reaction without becoming part of that reaction itself.

List three specific examples of the "lock and key concept" we discussed in class this year.

a.) _____

b.) _____

c.) _____

The ability of an organism to maintain a stable internal environment which is in balance with its surroundings is called _____.

Another name for homeostasis is _____.

List two major things which can occur if an organism fails to maintain homeostasis.

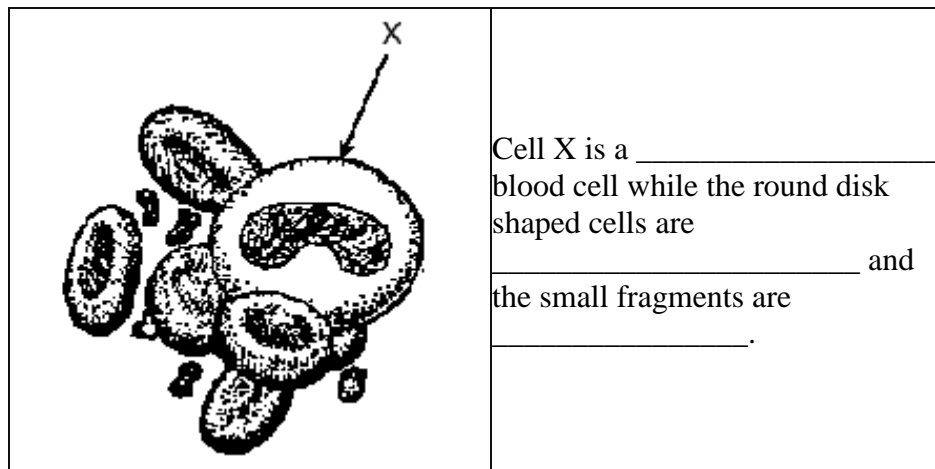
Any organism which causes disease is called a(n) _____.

List four categories of pathogens we studied.

Any foreign invader is called a(n) _____.

A chemical substance made by lymphocytic white blood cells to destroy or immobilize foreign invaders is called a(n) _____.

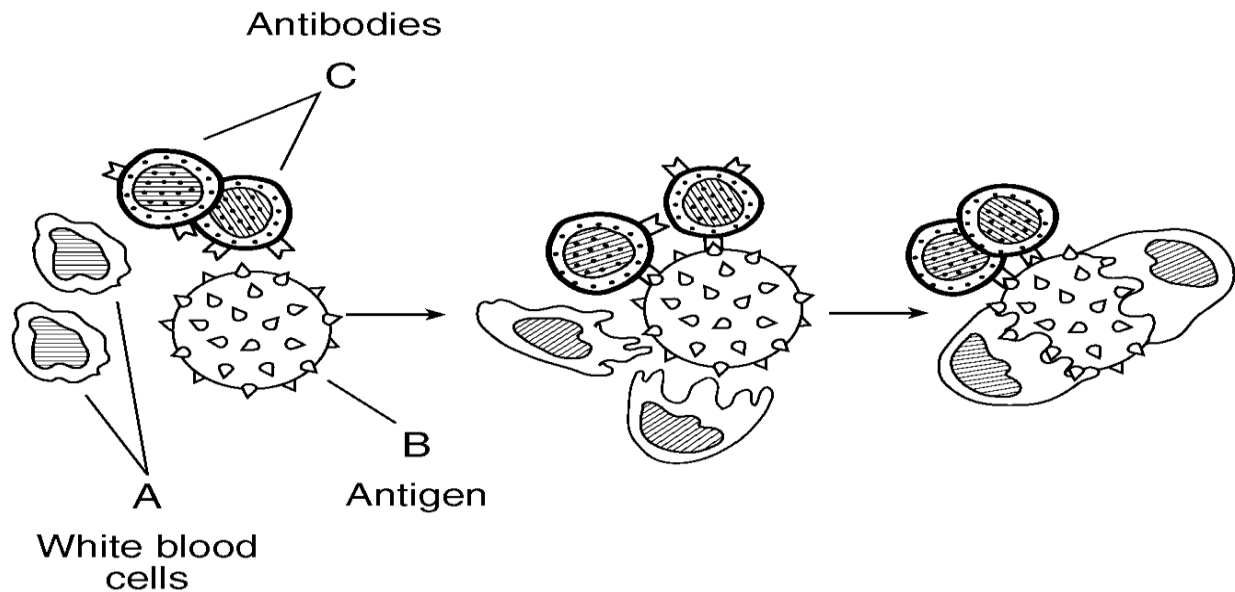
_____ kill some cancer cells which arise within the body.



_____ -- are white blood cells which engulf and destroy bacteria

_____ -- are white blood cells which produce antibodies

Some white blood cells simply mark invading pathogens for _____.



An immune response – white blood cells and antibodies attack a virus. Notice that the antibody protein has to have a specific _____ to fit with the antigen. This is another example of the _____ concept. This is also why vaccines are specific for a particular _____ or _____.

Vaccines use _____ or _____ microbes to stimulate the immune system to fight _____. The immune system will now have a _____ (or secondary immune response) to destroy any antigens which again invade the body at a later time.

Explain the chief mechanism by which AIDS destroys our immune system.

Why do people with AIDS die with things like respiratory diseases and rare cancers?

_____ -- a disease or group of diseases where the immune system over responds to normally harmless substances

_____ --- are diseases where the body attacks some of its own cells as in rheumatoid arthritis and lupus

Name a disease caused by inheritance. _____

Name a disease caused by toxic substances. _____

Name a disease associated with poor nutrition. _____

What is an organ malfunction? _____

Give an example of a poor personal behavior resulting in a disease which exhibits itself many years later.

Any change in the DNA of a cell is called a(n) _____.

_____ is a group of diseases associated with uncontrolled mitotic cell division.

Why are some chemicals and radiations called carcinogens?

List and explain two examples where our increased knowledge of genetics and reproductive technologies allow us to detect and diagnose diseases more quickly.

_____ -- allows us to look at pictures of chromosomes and detect disorders like _____

Amniocentesis – removal of a sample of the fetus _____ in order to detect possible genetic disorders

Dynamic equilibrium results from detection of and response to stimuli.

_____ -- is any change in the environment responded to by an organism

List an example of an organism responding to a stimulus at the cellular level.

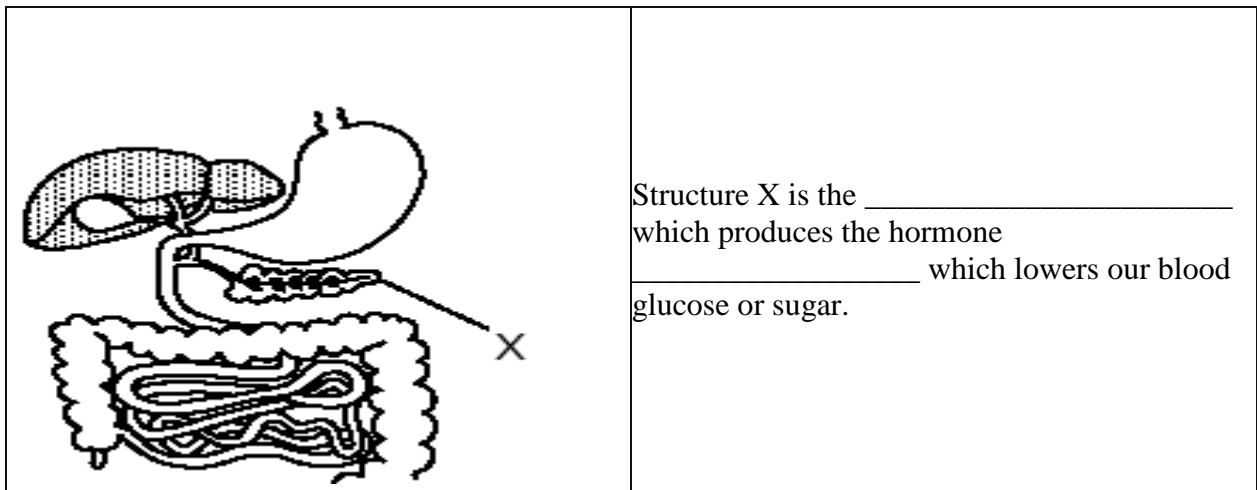
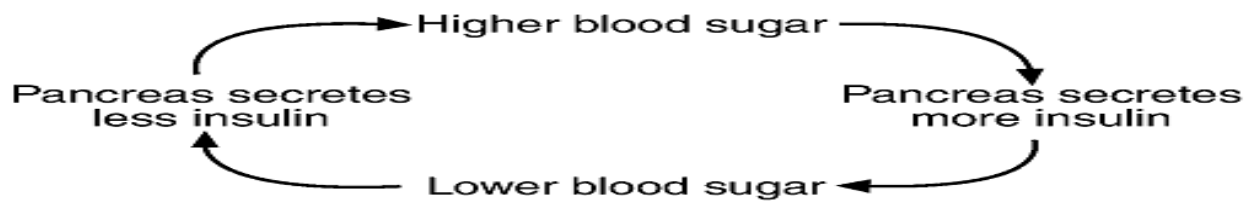
List an example of an organism responding to a stimulus at the organism level.

Feedback mechanisms have evolved to maintain _____.

A _____ is something which stimulates or slows (inhibits) another process.

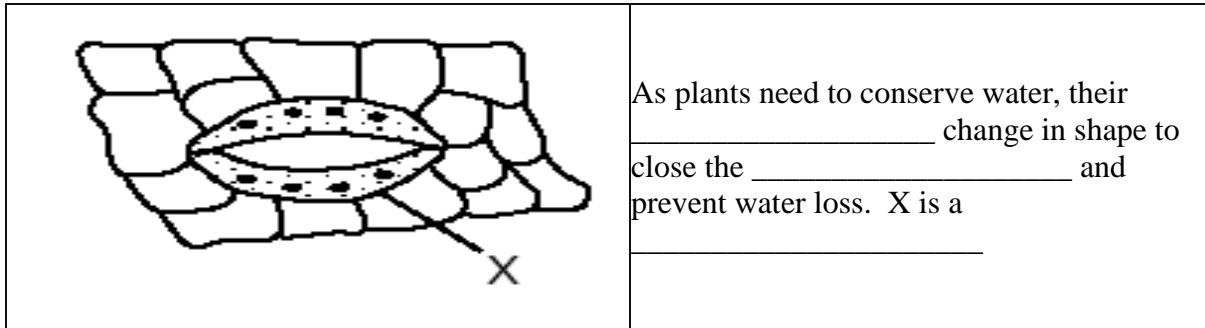
How does adrenaline illustrate a feedback?

How does increased insulin illustrate a feedback?

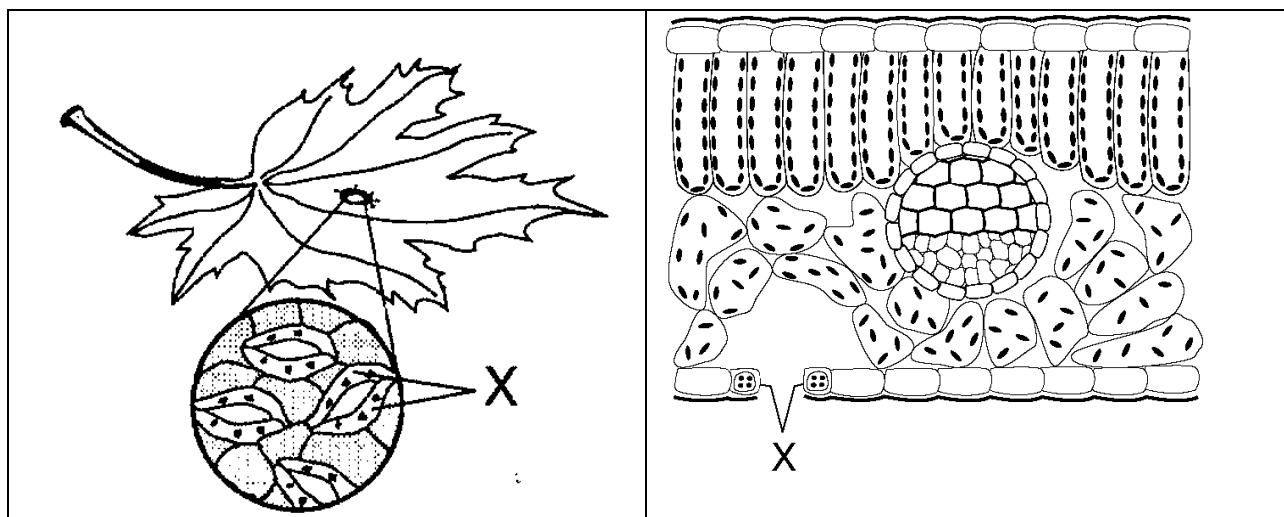


Insulin lowers blood sugar by converting excess glucose to _____ in the liver and muscles. Glucose also takes blood sugar directly into our _____.

As muscle cell activity increases, our heart rate and respiratory rate _____.



A Different View of Guard Cells



Hormones and Receptors on Target Cells

